

**DRAFT**

**Program Executive Office (PEO)  
Standard Army Management  
Information Systems (STAMIS)**

**Transportation Coordinators'-Automated Information  
for  
Movement System II  
(TC-AIMS II)**



**HUMAN SYSTEMS INTEGRATION PLAN**

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## PREFACE

The Human Systems Integration Plan (HSIP) serves as the principal source document for addressing Human Systems Integration (HSI) issues involved in the development of the TC-AIMS II system. The HSI domains addressed in this document are: (1) manpower; (2) personnel; (3) training; (4) human factors engineering; (5) system safety; (6) health hazards, and (7) soldier survivability. This document will be used as a planning guide and management tool to ensure that HSI issues are appropriately and adequately accommodated during system design, development and deployment. Further, this HSIP will provide an HSI audit trail by documenting program guidance, sources of applicable data, and acquisition decisions. This HSIP will be considered a “living document” and will be expanded and updated, as required. The HSIP is based upon the System Manpower and Personnel Integration (MANPRINT) Management Plan (SMMP) guidance and format. Because of the criticality of Human Factors Engineering (HFE), training and personnel factors to the success of TC-AIMS II, the HSIP will be maintained and updated throughout the TC-AIMS II system life cycle. As part of this ongoing process, Human Systems Integration Working Group (HSIWG) meetings and Integrated Logistic Support (ILS) Working-Level Integrated Product Team (WIPT) meetings will be conducted. Program design reviews will provide design revisions or alternatives to be considered for Human Computer Interface (HCI) and total system performance.

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## **TC-AIMS II**

### **Human Systems Integration Plan**

#### **1 BACKGROUND**

TC-AIMS II is a top-down directed program that must address critical shortfalls in moving cargo and people in support of the DoD mission. This system must support the FY87 Joint Chiefs of Staff (JCS) direction and the FY89 defense guidance that provided a requirement for an automated capability to provide timely and accurate passenger/cargo movement information during force deployments. Further, system development and implementation must be consistent with FY95-99 defense guidance that called for support systems to provide "rapid strategic mobility and sufficient support and sustainment capabilities."

The Secretary of Defense directed the system to satisfy these mission needs be fielded by Mar 97. Beyond that requirement, there is an urgent need to field a system that meets these needs in order for the Defense Transportation System (DTS) to be able to efficiently support unit movements and sustainment actions in support of US policy to react to crises or conflicts with CONUS-based components supported by Maritime Prepositioning Force/Afloat Prepositioning Force Assets. This has given additional emphasis to Joint Operations and Composite Force concepts.

Current systems fielded in the individual DoD Components cannot support such deployments with any degree of efficiency. Individual DoD Component systems support their DoD Component's needs satisfactorily, but they cannot adequately support Joint or Composite operations. It is imperative that these mission needs be satisfied in conjunction with the actions being taken in the operational systems arena so the transportation system that deploys and supports them is readily available. This requirement is essential to complying with stated US policy.

TC-AIMS II must provide an integrated information transportation system capability for routine deployment, sustainment, and redeployment/retrograde operations by employing the same DoD and Service shipment policies and procedures in peace and war and in both the active and reserve forces.

This system must be integrated with installation, unit, and depot-level supply systems to manage inbound and outbound movement (less Household Goods) documentation and requisition information. TC-AIMS II must be capable of supporting routine and surge requirements and must automate origin shipping/receiving, deployment, sustainment and redeployment/retrograde processes; produce movement documentation and unit move data; and furnish timely information to major commands (MAJCOMs/MACOMS), transportation component commands, USTRANSCOM, and the Joint deployment community. As a DoD source movement information system, TC-AIMS II must provide data for in-transit visibility (ITV) and control over cargo and passenger movement.

## 2 DESCRIPTION

### 2.1 TC-AIMS II SYSTEM DESCRIPTION

TC-AIMS II is a transportation management Automated Information System (AIS) and will interface with a number of other functional area AISs in order to accomplish its mission and to support other functional area requirements. TC-AIMS II objectives are to provide:

- A modernized and easily deployable AIS that supports reengineered functional processes throughout DoD.
- An increased effectiveness of the DTS as the single DoD Transportation Management AIS for use by all DoD Component unit movement personnel and ITO/TMOs.
- An essential electronic linkage of crucial movement information for US forces from the source to the ultimate achievement of global end-to-end information connectivity. Linking all DoD Component unit movement personnel and ITO/TMOs into one consolidated, integrated, easily deployable, transportation management system will do this.
- A critical mobility support that furnishes a force multiplier that will improve the responsiveness of DoD Component unit movement personnel and ITO/TMOs to move passengers and cargo worldwide.
- An improved, integrated, easily deployable, single DoD Transportation Management AIS that is reengineered to use the best functions of its legacy and migration systems.
- An elimination of duplicate systems among DoD Component unit movement officers and the ITO/TMO AIS infrastructure.
- An open architecture to include compliance with Global Combat Support System (GCSS) Common Operating Environment (COE) standards that will enhance the system's ability to incorporate results of ongoing process reengineering efforts to improve DTS responsiveness to the warfighter.
- A removal of barriers to data sharing, data transfer, and interoperability as defined by GCSS COE.
- An Electronic Commerce/Electronic Data Interchange (EC/EDI) linkage to the commercial transportation industry for procurement of passenger and cargo transportation services at "best value" to users.
- An integration of transportation and related logistics and operations AISs to ensure cross-functional integration of the deployment and replenishment processes.

- A standardized system that achieves total interoperability for all DoD Component unit movement officers and ITO/TMOs.
- A significantly improved Joint mobility and transportation procedure that provides DoD unit move personnel and ITO/TMOs with a single totally integrated, easily deployable transportation management AIS.

TC-AIMS II will integrate computer hardware, software, and communications in order to process, retrieve, and transmit unit movement and ITO/TMO data. A host processor will support a multi-user, multi-tasking operating system, and a Sybase relational data base management system. Workstations will contain the application programs that allow users to interact with the database at the host processor. Sybase provides access to the functional areas to enter and view data.

A unified LAN for intrabase communications while long haul communications traverse DDN will connect the system. Electronic Data Interchange (EDI) will provide standard transaction formats with commercial carriers, other traffic managers, and financial centers. A suite of Automated Information Technology (AIT) equipment will facilitate the collection and transmission of bar coded shipment information. The TC-AIMS II architecture will be rounded out by a complement of document, text, and label printers.

## 2.2 TARGET AUDIENCE DESCRIPTION (TAD)

The TAD will be made up of System Administrators (SA), Database Administrators (DBA), Installation Transportation Office (ITO)/Traffic Management Office (TMO) specialists, and Unit Movement (UM) specialists.

## 3 ACQUISITION STRATEGY

The TC-AIMS II acquisition process will be characterized by concurrent prototyping, Joint application development, testing integration, fielding, and support. At any given time, new functions will be in the prototype phase while the next increment of work is being specified. This will occur as previously specified work is being developed, tested, and fielded. The operational software will be constantly improved, with revisions incorporated as fixes or as part of future deliveries.

The TC-AIMS II acquisition process will take an evolutionary approach of utilizing common characteristics and features of existing legacy systems to accommodate the needs of the Joint community.

### 3.1 SOFTWARE DEVELOPMENT

The software development is performed in an evolutionary process. The process involves development through specific, sequential stages. There are specific objectives to be accomplished in each stage. Each activity must be deemed successful for work to proceed to the subsequent phase. The process is usually considered non-iterative. Each phase requires the delivery of particular documentation products. Many of the

phases require successful completion of a government review process. An alternative approach to software development involves the use of incremental builds. With this approach, software development begins with the design of certain core functions to meet critical requirements, and each successive software “build” provides additional functions or enhances performance. Once system requirements are defined and preliminary system design is complete, each build may follow the pattern for subsequent development phases. Each successive build will be integrated with prior builds. There will be multiple releases of TC-AIMS II with each providing enhanced functionality and encompassing some of the elements of the evolutionary approach to the total migration of the legacy systems.

### 3.2 HARDWARE ACQUISITION

Commercial-Off-the-shelf/ non-developmental item (COTS/NDI) hardware will be used in the TC-AIMS II program. Development hardware configurations shown below are as of 9 February 2001. The following are the development hardware configurations for the server, desktop computer, notebook computer and Automated Information Technology (AIT) equipment for the TC-AIMS II application. New purchases not identical to the manufacture/models listed below should have equivalent technical characteristics. It is not required or expected that these specific manufacture or models be purchased. The configurations are scaled for supporting the TC-AIMS II application alone. Where additional systems/applications will be co-hosted on a platform, the hardware (e.g. hard drive, RAM, etc) must be enlarged to satisfy the total requirement. Scaling the hardware to co-host additional systems is a Service responsibility.

#### **TC-AIMS II Development Server Configuration:**

Model: HP LXE Pro 6/200 with Disk Array 5  
Memory: 320 MB  
Hard Disks: 6-9.1 GB Hot Swap Drives  
CD-ROM: Yes  
Monitor: 17-in Color  
Mouse: Yes  
Tape Drive: HP DAT241, 24 GB Internal  
Graphics Card: Color 2D  
Network Card: Ethernet or Fast Ethernet  
UPS: HP 3.0 KVA Power Trust UPS  
Operating System: Windows NT for server 4.0  
Network Connectivity: TCP/IP  
Database Software: Sybase ASE 12.0

#### **TC-AIMS II Development Desktop Configuration:**

Model: Gateway Pentium III Mini Tower  
Memory: 128 MB  
Hard Disks: 4.3 GB  
CD-ROM: Yes

Monitor: 17-in High Resolution  
Mouse: Yes  
Graphics Card: 2 MB  
PC Card: PCMCIA drive  
Network Card: Ethernet or Fast Ethernet  
Operating System: Windows NT for Workstation 4.0  
Network Connectivity: TCP/IP  
Database Software: Sybase ASE 12.0

### **TC-AIMS II Development Notebook Configuration:**

Model: Inspiron 7500 Pentium III 500 Mhz  
Memory: 128 MB  
Hard Disks: 4.3 GB  
CD-ROM: Yes  
Monitor: SVGA 256 color, Active Matrix Display  
Mouse: Touchpad  
Graphics Card: 2 MB  
PC Card: PC MCIA drive  
Network Card: Ethernet or Fast Ethernet  
Operating System: Windows NT for Workstation 4.0  
Network Connectivity: TCP/IP  
Database Software: Sybase ASE 12.0

### **AIT Integration:**

|                     |  |
|---------------------|--|
| <b>PRINT LABELS</b> | Intermec 4400<br>Zebra PT-400 Portable Printer<br>Zebra Z-4000 Printer<br>Zebra Z-6000 Printer   |
| <b>SCAN LABELS</b>  | Janus 2020 DCD with 4MB memory<br>Savi 410R Hand-Held Interrogator<br>Symbol 7200 Series Scanner |
| <b>BURN RF TAGS</b> | Savi Fixed or Mobil Interrogator<br>Savi Tag Docking Station                                     |

## **4 DEFICIENCIES AND/OR LESSONS LEARNED FROM THE PREDECESSOR SYSTEM**

### **4.1 DISCUSSION**

TC-AIMS II is the next step in the evolution of TC-AIMS as promulgated under SM-3-87 by the Joint Chiefs of Staff. TC-AIMS II will continue the evolution of the Unit/Installation level DTS element. Much has been accomplished since the issuance of SM-3-87 but even more remains to be accomplished, and TC-AIMS II is critical to correcting these deficiencies.

Traffic management is defined in JCS Publication 1-02 as "the direction, control, and supervision of all functions incident to the procurement and use of freight and passenger transportation services." Today's DTS remains largely fragmented along DoD component and modal lines characterizing the multiple oversight structure that currently exists. Management processes evolved independently for each mode of transportation, with focus more on "local" as opposed to total transportation system optimization. This fragmentation manifests itself in a number of deficiencies/mission needs. There are several information management deficiencies, which must be overcome.

Each of the Services and DoD activities operates its own separate systems to accomplish similar movement management and deployment-related tasks. These individual systems are not integrated to provide uniformity of information. There is a lack of standardization in data elements; data transmission formats accessibility to information and source data capture capabilities. These limitations hamper our ability to create an accurate common DoD information picture of the status of deployments and DTS movements. Other operational impacts include: limited automated connectivity between/within the Service/activity systems; separate transportation systems foster the growth of different, Service-unique procedures to solve similar problems; separate, Service-unique training courses must be developed/presented; and each system is maintained by a separate software development team.

The separate systems operated by each Service/activity cannot stand alone to satisfy the total information management needs for each unit/activity. This has led to the development of several systems across the Services, which serve the same user with different capabilities. To take advantage of the total capabilities, the user is forced to acquire/use several different computer systems and hardware platform configurations. Because these various capabilities were developed independently, there is limited horizontal and vertical interoperability among them. The user must learn to operate several different systems to accomplish his job, which lengthens the training time required and increases training complexity.

The separate systems operated by each Service/activity are not fully integrated with Service-unique command and control systems or Joint command and control systems, which result in a lack of advanced movement information. This deficiency restricts the movement of accurate peacetime and wartime information, captured at the operational level, to other commands and supporting elements. This deficiency is most significant when the information relates to force deployment. Command and control headquarters, both for the deploying force and the supported CINC, require immediate access to an accurate picture of the deployment status.

The separate systems operated by each Service/activity provide different levels of capability to transition from daily operations to a higher OPTEMPO; e.g., to support a large force deployment or increased shipment levels. Some systems have an ability to operate on the battlefield while others have been designed for operation in garrison conditions with a specific communications interface requirement. The Services and

CINCs need an integrated DoD transportation system which is operated by units that deploy, units that support the deployment, and Service/DoD activities both in peace and war. The integrated system must be capable of operating in all environments, at all OPTEMPO, and with a variety of communications support options.

The DTS community includes many different types of customers. Each customer type has specific information needs, which are not currently being met in a cohesive DoD-standard system. The system customers listed below represent the baseline user community, which will operate this information system.

a. Deploying unit commanders must translate information about the mission they are deploying to support into detailed and realistic movement plans for the deployment. This translation occurs in a short time period when information continually changes about available lift assets, mission details, and unit assets allocated to support the mission. The deployment managers, acting for the unit commander, must use this volatile information to plan unit convoys; schedule and track events; prepare load plans for vehicles, rail cars, aircraft or ships; prepare MILSTAMP/Electronic Data Interchange (EDI) documentation; and account for equipment, personnel, consumable supplies and funds. The current information management tools available to the deployment managers in all Services are not integrated and do not readily support the OPTEMPO for a crisis deployment.

b. The ITO/TMO is charged with coordinating transportation services, preparing shipment documentation, and certifying funding for all freight items and group passenger movements. This mission supports unit deployments, shipping sustainment items to support the deployed forces, and daily inbound/outbound shipments to support installation/depot business. The information management tools available to the ITO/TMO staff is not fully integrated with the other installation/depot systems or the unit deployment systems. The ITO/TMO systems do not have a common electronic interface to commercial carrier systems. Current systems are limited in their ability to do one-time data entry, minimize man-machine interface, and electronically exchange data, thereby causing business process inefficiencies. A lack of fully integrated systems and communications also delays the reporting of accurate in-transit visibility information.

c. Theater Movement Control Activity. Movement control activities on the modern battlefield require access to the best information, which can be provided. Theater movement control activities are responsible for:

(1) Ensuring the delivery of items when and where needed, managing inbound, intra-theater, and retrograde transportation movements.

(2) Planning for the best use of available transport assets to meet the highest priority command needs.

(3) Providing multiple levels of service to accommodate customer needs.

- (4) Creating Surface Distribution Plans, which can be used by all shippers in a dynamic environment.
- (5) Assisting in the expedited delivery, diversion, and timely movement of supplies to prevent traffic problems.
- (6) Scheduling traffic along the theater distribution network to meet command needs.
- (7) Accounting for intermodal assets and returning them for use in the DTS.
- (8) Accurately documenting transportation funds committed to support ongoing missions.
- (9) Management of inbound, intra-theater, and retrograde transportation movements.

The current suite of information management tools available to theater movement control activities is not fully integrated with the other logistical and C2 systems or with systems operated by the other Services on the same battlefield or in the same theater of operations.

d. Vehicle Asset Managers and Operators. The conveyances used to move military equipment and personnel assets are precious commodities. To schedule their use effectively, managers of these assets require access to timely information on the status of vehicles, drivers, and missions. This information must be displayed in a method, which allows the managers to easily identify the status of all current and future missions and to allocate multiple consecutive missions to individual drivers and vehicle combinations. The current suite of information systems available to asset managers does not readily support this requirement. These systems are not integrated with other systems, which track the maintenance status of the vehicles or driver availability/qualifications. This information management shortfall hampers the timely dispatch of movement assets and their effective use to support DTS movement missions.

e. Cargo Transshipping/Documentation Activities. Transshipment activities must be able to identify inbound shipments and plan for their quick, onward movement; document cargo for onward movement utilizing prepositioned electronic data and AIT capability; redirect frustrated cargo; expedite shipments; and report on the status of shipments in transit. The current suite of information management systems available for transshipment activities does not support these actions without extensive man-machine interface. This shortfall expands the amount of time needed to process transshipment documentation and lengthens the time shipments remain at transshipment facilities. There is a need for a common DoD transshipping software application that supports all intermodal activity at transshipment points, whether airports, seaports, barge, terminals, railheads, truck hub-and-spoke terminals, or consolidation activities.

(1) In summary, DTS is handicapped by long-standing problems that begin at the unit/installation level. DoD's mobility challenges in the world's new operating environment require integrated, flexible, effective, efficient, and responsive structures and processes. Customers are increasingly critical of the DTS's ability to provide reliable, cost-effective transportation services in comparison to the commercial sector; they will not tolerate unnecessary overhead, excessive layering, and duplication of effort. The DTS must use "best-business" practices and strive to continually improve service to its customers. One key ingredient in realizing this much-needed improvement is through the fielding of TC-AIMS II.

(2) DoD Component systems will continue to be stove-piped at the unit/installation level and will not support Joint or Composite operations which support national strategies. System maintenance costs will continue to be high and the cost of upgrading the individual systems may exceed available budgeted amounts. Current ITV/TAV initiatives will be compromised and operational unit movement data will not be available to strategic planners without a great deal of collection effort.

## **5 HSI GOALS AND CONSTRAINTS**

### **5.1 GOALS**

The goals to be achieved for each HSI domain are outlined in the following paragraphs:

#### **5.1.1 Manpower**

Manpower refers to the human resource requirements and authorizations (military and civilian spaces) needed for the operation, maintenance, and support of each item of the system. Manpower goals are:

- a. Current personnel, military and DOD civilian (target audience) must be able to perform the required mission using the acquired hardware, software, communication, and associated equipment.
- b. No increase in military or DOD civilian manpower will be required for the operation of TC-AIMS II equipment. An over all increase in manpower is not planned at sites where TC-AIMS II will be maintained.

#### **5.1.2 Personnel**

Personnel Domain is the domain concerned with the quality and qualifications of individuals who will operate TC-AIMS II. The personnel domain is specifically concerned with skills, abilities, aptitude and knowledge, physical and psychomotor characteristics, distribution of quality and quantities, grade structure and Military Occupational Specialties (MOS) information. Personnel goals are:

- a. TC-AIMS II shall be designed to meet the capabilities and limitations of the target personnel.

- b. Software and hardware maintenance tasks will not exceed present user capability or skill level.
- c. No new MOS or civilian job series shall be created.
- d. Security clearance is not currently required to operate the TC-AIMS II system. However, the security requirements are the responsibility of the using organization.

### 5.1.3 Training

Training refers to the instruction or education, and-on-the-job or unit training required to provide personnel their essential job skills, knowledge and attitudes. TC-AIMS II training goals:

- a. Provide training materials that adequately train system tasks to operators, maintainers and system administrators without increasing manpower, personnel or training requirements.
- b. Develop training manuals and system screens to the Reading Grade Level (RGL) of the target audience.
- c. Identify critical training tasks for each category of users.
- d. Ensure training measures are in place to prevent skill erosion, i.e., having to retrain personnel.

### 5.1.4 Human Factors Engineering

Human Factors Engineering (HFE) is defined as a comprehensive technical effort to integrate design criteria, psychological principles, and human capabilities and limitations as they relate to the design, development, test, and evaluation of systems. HFE objectives are:

- a. Ensure the system conforms to applicable human engineering design criteria and principles for the design, development, and integration of system hardware and software.
- b. Conduct a human engineering program, following the appropriate portions the military handbook, to ensure that the human-to-computer hardware and software interfaces:
  - Do not exceed the physical and cognitive abilities of the target audience user, operator, or maintainer.
  - Are selected and designed based upon appropriate task, function, and work load analyses.

- Can be used in the intended operational environments associated with peacetime, mobilization, and war operations.

c. Ensure human engineering principles are used as a key element in the criteria and trade-offs regarding the selection and evaluation of NDI and COTS hardware and software.

#### 5.1.5 System Safety

System Safety is defined as the application of engineering and management principles, criteria, and techniques to optimize safety within the constraints of operational effectiveness and time throughout all phases of the system. Additional information is available in MIL-STD-882C (System Safety Program Requirements). System safety objectives are to:

a. Identify any unique safety features, restrictions, and special procedures applicable to the system for potential injury-causing defects. Technical publications shall contain warnings, cautions, and proper procedures for safe use of the system.

b. Utilize system safety programs during design, installation, and integration of the system.

c. Ensure, through the application of the principles of system safety engineering, the elimination or development of countermeasures for those hazards associated with:

- Electrical hazard
- Ionizing and non-ionizing hazards
- Noise hazards
- Blunt and sharp objects
- Thermal hazard
- Lifting hazard
- Chemical hazards

d. Ensure that the following order of precedence for satisfying system safety requirements and resolving identified hazards are followed:

- Design for minimum risk
- Incorporate safety devices
- Provide warning devices and labels
- Develop procedures and training

e. Ensure that NDI/COTS systems meet current military and commercial safety design criteria.

f. Ensure, through the application of the principles of system safety engineering, the elimination or development of countermeasures for those hazards identified during the

design of the system. Those hazards that are not eliminated will be treated as residual hazards, to be classified and processed in accordance with the requirements of MIL-STD-882C (System Safety Program Requirements). If applicable, those residual hazards will be included in the system's training programs and technical publications.

#### 5.1.6 Health Hazard

A health hazard is defined as any existing or likely condition, inherent in the operation or use of equipment which can cause death, injury, acute or chronic illness, disability, or reduced job performance of personnel. There shall be no uncontrolled potential health hazards associated with the TC-AIMS II system, and will not require a formal Health Hazard Assessment Report.

#### 5.1.7 Soldier Survivability (SSv)

- a. The TC-AIMS II system shall not increase the vulnerability of operating personnel to the expected battlefield threats.
- b. The TC-AIMS II system shall not be uniquely identifiable through electromagnetic emissions or signatures.
- c. The TC-AIMS II system shall be operable by personnel in MOPP IV.
- d. The TC-AIMS II system shall be designed, to the extent possible, to reduce operator mental fatigue and cognitive stress.

#### 5.1.8 Other goals

- a. Integrate HSI completely into the acquisition of the system including its support structure.
- b. Identify early in the development cycle those HSI analyses, tests and evaluations whose results are critical to anticipated system performance.
- c. Assure that proposed hardware and software technologies are as mature as possible with respect to HSI issues.
- d. Maintain continuous HSI considerations in program level trade-offs and decisions through integration and review meetings.
- e. Monitor, review, and resolve Human Computer Interface (HCI) issues addressed through the PVCS TRACKER system.
- f. Monitor, evaluate, and participate in the MANPRINT testing events as noted in the TEMP.

## 5.2 CONSTRAINTS

Required workforce at all levels are trained and prepared to receive and operate the software and hardware.

### 5.2.1 Common Operating Environment.

TC-AIMS II must comply with GCSS and DII COE for information management systems. These standards are most critical for clients who use the system in the battlefield environment where system interoperability is a crucial success factor. The system must comply with the MANPRINT standard and must be transportable for use while deploying, in garrison, and on the battlefield.

### 5.2.2 Communications.

TC-AIMS II will be operated around the globe in areas where communications infrastructure is completely developed and reliable and in other areas where the communications infrastructure is non-existent. In either environment, TC-AIMS II information management capabilities will be necessary to support the deployment, sustainment, redeployment/retrograde, and employment of forces. TC-AIMS II communications design must support a wide range of options, including commercial telephone services, wireless communications, local area networks, wide area networks, the Warfighter Information Network (WIN), Defense Information System Network (DISN), tactical Mobile Subscriber Equipment (MSE), cellular communications, and satellite communications. The type of communications being employed must be transparent to the functional system user, i.e., there should be no technical knowledge burden placed on the user who is required to send/receive information.

### 5.2.3 Power.

When provided to deploying/deployed forces, TC-AIMS II hardware must be capable of operating in both field and garrison conditions using commercial power sources, mobile generator power, vehicle (battery) power, or computer battery power.

### 5.2.4 Joint Usage.

TC-AIMS II software design must permit Service-unique capabilities. While the system should be operated similarly by all Services, the importance of data elements, process or process structures to one Service should not be set aside because the same requirement does not exist across all Services.

### 5.2.5 Geographic Information Systems (GIS).

In situations where TC-AIMS II will use map databases to support applications, the TC-AIMS II design will permit use of the standard GIS selected for C2 systems.

#### 5.2.6 Interface to Command and Control Systems.

TC-AIMS II must provide for information exchange with Service-unique C2 and Joint C2 systems.

#### 5.2.7 Documentation Formats.

TC-AIMS II input and output documentation, transmissions, and input screens will comply with standards established in Standard NATO Agreements (STANAG), Joint US Message Text Formats (USMTF), American National Standards Institute (ANSI), Electronic Data Interchange (EDI) formats, MILSTAMP (DoD Reg 4500.9-R), and radio-frequency (RF) tag formats.

#### 5.2.8 MILSTAMP.

TC-AIMS II functional processes will comply with shipping, transshipping, and receiving procedures documented in Military Standard Transportation and Movement Procedures (MILSTAMP), of the Defense Transportation Regulation (DTR), DoD Regulation 4500.9-R.

#### 5.2.9 Source Data Automation.

TC-AIMS II will use DoD-approved source data automation. This includes the suite of AIT devices approved by DoD such as radio frequency tags, LOGMARS (3 of 9 and 2D) labels, optical laser cards, soldier data cards, and other methods established as DoD standards. The TC-AIMS II hardware suite must include the peripheral devices, which will read these source data automation devices and write or change the information on the device.

#### 5.2.10 Information Access.

Information in the TC-AIMS II is not classified. When tactical communications networks support TC-AIMS II, the use of end-to-end encryption technologies is required.

#### 5.2.11 Deployment Phases.

The TC-AIMS II will be used to support information activities for both the supporting CINC and supported CINC and their Service components. These activities include: pre-deployment planning actions, movement to local assembly areas, movement to POE, load planning for strategic lift, reception at POD, and onward movement from POD. In addition, TC-AIMS II must support sustainment, retrograde movement of unit equipment, and redeployment of forces to home stations.

#### 5.2.12 Source Data from Service-unique Systems.

TC-AIMS II will draw deployment-related information from Service-unique systems. This data may include personnel identification, equipment lists, funding information, and movement status.

#### 5.2.13 Training.

Training will be augmented by embedded screen and context-sensitive help functions, hypertext links to the user manuals, and electronic user manuals.

#### 5.2.14 Mode Asset Tracking Interface.

When used in support of vehicle asset managers and operators, TC-AIMS II will include an interface to onboard the vehicle data communication and tracking devices. This will permit the managers/operators to identify vehicle locations and communicate with the drivers under their command.

#### 5.2.15 Reserve Components.

TC-AIMS II will be used by the Reserve Components of all Services to support pre-deployment planning activities, movement to home station, movement to mobilization station and similar activities associated with demobilization-related movements.

#### 5.2.16 Service Depots and Defense Depots.

TC-AIMS II will interface with and be used by transportation activities at Service depots and Defense depots to process inbound and outbound freight shipments.

#### 5.2.17 Non-unit Personnel Movements.

TC-AIMS II will support the scheduling and documentation requirements for movement of non-unit personnel on commercial and military assets.

#### 5.2.18 Task Force Organizations.

TC-AIMS II software design will permit Service units to easily task and organize into a deployable force through cross-leveling of equipment, personnel, and consumable stocks. A Joint task organization among the Services will also be supported. The task organization should include provisions for deploying civilian personnel, DoD personnel and equipment in TDA units, non-DoD personnel/equipment, and foreign nationals.

#### 5.2.19 Cross-Service Compatibility.

TC-AIMS II system design should permit system operation by any Service personnel on workstations provided by other Services, i.e., USAF personnel deploying from a forward base to home station should be able to use TC-AIMS II workstations at US Army-controlled facilities/assembly areas to support deployment processing, also meeting the DISA open-system architecture and GCSS COE compliance.

#### 5.2.20 Interfaces.

TC-AIMS II will interface with Service-unique systems and DoD systems to support TAV and ITV objectives for shipments in the DTS. TC-AIMS II will interface to serve unique systems for shipment planning, shipment receiving and financial accounting.

#### 5.2.21 Data Standardization.

All data elements transmitted and received by the system or provided through remote access to other systems must comply with DoD standards.

### 5.3 DEFICIENCIES AND/OR LESSONS LEARNED BY DOMAIN

#### 5.3.1 Manpower

Predecessor systems can be characterized to varying degrees by the following deficiencies in the HSI manpower domain:

- User needs were not met, thus invalidating manpower savings estimates.
- Progress in reducing manpower requirements was not demonstrated until late in system development, thus revealing systems that were significantly off target at a stage where they were increasingly difficult to correct.
- Systems continued to rely on operator-intensive tasks, thus automating manual processes, rather than reducing task requirements through system design with resultant potential manpower saving or productivity increases.

#### 5.3.2 Personnel

Predecessor systems can be characterized to varying degrees by the following deficiencies in the HSI personnel domain:

- Time from the current system's conception to fielding was too long, resulting in multiple changes due to new technology and trained personnel turnover.
- System requirements were often poorly understood, developed, and communicated from and to the user.

#### 5.3.3 Training

Predecessor systems can be characterized to varying degrees by the following deficiencies in the HSI training domain:

- User needs was not fully met by the systems training programs, thus invalidating training savings estimates.
- Progress in reducing training requirements was often not demonstrated until late in systems development.
- Training often relied on instructor-intense, centralized approaches, resulting in high delivery costs, and imposing travel and travel-time financial and opportunity costs on the customer.
- User validation was often postponed until later training development stages or after initial system fielding.
- Redundant training development activities were often performed.
- Excessive training documentation was often required and produced, but which did not facilitate improved communication or support for user or maintenance personnel.

#### 5.3.4 HFE

Predecessor systems can be characterized to varying degrees by the following deficiencies in the HSI HFE domain:

- User testing was often postponed until later development stages or after initial fielding.
- Application software was not always user-friendly, standardized, or easy and inexpensive to maintain.
- Little or no consideration was made to accommodate female maintenance staff's limitations for lifting and carrying hardware configuration items or for reasonable accommodation and adaptive technologies for system use by handicapped personnel.

#### 5.3.5 Safety

Predecessor systems can be characterized to varying degrees by the following deficiencies in the HSI safety domain:

- System safety requirements were often poorly articulated.
- System safety program management was often not conducted in concert with HSI management.
- System safety hazard risks were often inadequately mitigated, and residual risk hazards were often inadequately surveyed, logged, and disseminated through cautions and warnings.

- No integration responsibilities were assigned for total system environmental safety risk elimination or avoidance, often resulting in unsafe work environment despite safety-certified equipment.

### 5.3.6 Health Hazards

Predecessor systems can be characterized to varying degrees by the following deficiencies in the HSI health hazards domain:

- Health hazards requirements were often poorly articulated.
- Health hazards management was often not conducted in concert with HSI and system safety program management.
- Health hazard risks were often inadequately mitigated, and residual risk hazards were often inadequately surveyed, offered, and disseminated through cautions and warnings.
- No integration responsibilities were assigned for total system environmental health hazard risk elimination or avoidance, often resulting in potentially health-hazard-producing work environments despite screening of system hardware and peripheral support equipment.

### 5.3.7 Soldier Survivability (User)

Predecessor systems can not be characterized at the current time for deficiencies in the HSI soldier survivability (user) domain because to its recent inclusion and lack of comparative data.

## 6 HSI ISSUES

### 6.1 ADDRESSING ISSUES

The initial HSIWG meeting was held on 14 January 1998, at PEO STAMIS/JPMO. The purpose was to introduce Service representatives to the TC-AIMS II HSI program and the HSI Plan (HSIP). Each Service had an opportunity to address their Service's issues and concerns. As a result of the meeting, the HSIWG agreed on the HSI issues shown at Annex D.

### 6.2 ISSUE ANALYSIS

Each issue identified by the Services will have an HSI issue worksheet prepared and provided at Annex D. This worksheet will be the vehicle used to track each issue to its resolution.

### 6.3 HUMAN SYSTEMS INTEGRATION EXECUTION

The JPMO TC-AIMS II HSI program will be supported by an HSIWG, which is composed of representative members from each Service and chaired by JPMO TC-AIMS II or his representative. The HSIWG meetings are held at the discretion of the chair (JPMO) to review the HSI program and address issues and concerns. The draft HSIWG Charter is provided at Annex G. The charter will be reviewed and approved by the HSIWG members and JPMO TC-AIMS II and will be signed by all Service representatives. The HSI Milestone Events Schedule is provided at Annex F.

## **7 HSI EXECUTION**

This section is not applicable. The current approved TC-AIMS II program schedule may be found on the TC-AIMS II WEBSITE at [www.tcaimsii.belvoir.army.mil](http://www.tcaimsii.belvoir.army.mil).

## Annex A - Coordination List

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## **Annex B - HSI Documentation Status**

The following HSI related documentation is in progress or completed:

- Record of Environmental Consideration
- Life Cycle Environmental Document
- Environmental Analysis Worksheet
- System Safety Test Release
- Health Hazard Assessment
- System Safety Management Plan
- System Safety Working Group Charter
- Safety Assessment Report
- System Training Plan
- Human System Integration Working Group Charter
- Test and Evaluation Master Plan (TEMP)
- Integrated Logistic Support Plan (ILSP)

Human Factors Engineering Analysis Reports (noted below), per U.S. Total Army Personnel Command (PERSCOM) letter dated 2 November 1993, in answer to HSI Action Item #005, are not currently required for MAISRC systems, request for reports will be submitted if deemed necessary:

- Manpower, Personnel and Training Domain Report
- MANPRINT Assessment
- Human Factors Engineering Assessment

## Annex C - References

The following list of potential HSI Data Sources is annotated pursuant to the requirements of the Services. The letter annotations next to each entry represent the HSI Domains as follows:

- SS: Safety
- HFE: Human Factors Engineering
- HH: Health Hazards
- MP: Manpower
- PERS: Personnel
- TNG: Training
- SSv: Soldier Survivability
- A: All HSI Domains

This annotated listing forms the cornerstone for all HSI analysis and planning:

| <u>Document Title</u>   | <u>Domain</u> |
|---|---------------|
| DOD Directive 5000.51, Total Quality Management Guidance for Implementation                             | A             |
| DOD-HDBK-761, Human Engineering Guidelines for Management Information Systems                           | A             |
| AR 602-1, Human Factors Engineering Program, 2 August 91  | HFE           |
| AR 602-2, Manpower and Personnel Integration (MANPRINT) in the Materiel Acquisition Process, 10 July 94 | A/SSv         |
| AR 385-16, System Safety Engineering and Management   | SS            |
| MIL-STD-882C, System Safety Program Requirements, 19 January 1993                                       | SS            |
| DA PAM 385-16, System Safety Engineering and Management, 4 September 1987                               | SS            |
| CECOM Suppl 1 to AR 385-16, System Safety Engineering and Management,                                   | SS            |

10 February 1988, and change 1, 16

|   |               |
|---|---------------|
| DA PAM 73-XX (Vol 6), Test and Evaluation Procedures and Guidelines (Software Test and Evaluation Guidelines) | HFE,TNG       |
| MIL-H-46855B, Human Engineering Requirements for Military Systems, Equipment and Facilities                   | HFE           |
| MIL-STD-454, General Design Requirements for Sys/Equip  | A             |
| MIL-STD-470, Maintainability Program for Sys/Equip  | HFE,MP,TNG,SS |
| MIL-STD-721, Definitions of Effectiveness Terms for Reliability, Maintainability, Human Factors, and Safety   | HFE,SS,HH     |
| MIL-STD-785, Reliability Program for Systems and Equipment  | HFE           |
| MIL-STD-882C, System Safety Program Requirements  | HFE,HH,SS     |
| MIL-STD-1472D, Human Engineering Design Criteria for Military Systems, Equipment, and Facilities              | A             |
| MIL-STD-2155, Failure Reporting, Analysis, and Corrective Action System                                       | HFE           |
| OTEA Memo 73-1, Operational Test and Evaluation Methodology and Procedure Guide, 1 May 1990                   | HFE,TNG       |
| OTEA Handbook for the Evaluation of User Friendless of User-System Interfaces, 6 September 1989               | HFE,TNG       |
| AFTOECP 800-2 (Vol 4), Software Usability Evaluator's Guide,  | A             |

The following provides a listing of TC-AIMS II contract referenced documentation for Design, Development and System Standards:

|                 |   |
|-----------------|---|
| DOD-STD-2167A   | System Software Development                         |
| DOD-STD-1467    | Software Support Environment                        |
| DOD-STD-7935A   | AIS Documentation                                   |
| DOD 5200.28-STD | Trusted Computer System Evaluation Criteria         |
| MIL-STD-1815A   | Ada Programming Language                            |
| MIL-STD-1781    | Simple Mail Transfer Protocol (SMTP)                |
| MIL-STD-CITIS   | Contractor Integrated Technical Information Service |
| FIPS PUB 146    | GOSIP Communications Protocols                      |
| FIPS PUB 127    | Data Base Structured Query                          |
| FIPS PUB 151    | POSIX Operating System                              |

The following are document titles for Data Format and Exchange Standards:

|   |  |
|---|--|
| MIL-STD-1840,                                     | Data Interchange, File Management          |
| MIL-D-28000                                       | CAD, Vector Graphics (IGES)                |
| Engineering Drawings                              |  |
| TM Illustrations                                  |  |
| Electronics                                       |  |
| Numerical Control                                 |  |
| MIL-R-28002                                       | Scanned Images                             |
| Consultative Committee on International           |  |
| Telegraphy and Telephone [(CCITT) Group 4 RASTER] |  |
| MIL-D-28003,                                      | Vector Graphics (CGM)                      |
| TM Illustrations (Preferred)                      |  |
| MIL-D-28004,                                      | Product Data Exchange Specification (PDES) |
| MIL-HDBK-59,                                      | CALS Implementation Guide                  |

The following are other reference documents:

Joint Service Technical Manual Functional Description (TMFD), December 91

TC-AIMS II Mission Need Statement (MNS), 5 August 97

TC-AIMS II Operational Requirements Document, 25 March 1999

TC-AIMS II Acquisition Strategy, 12 April 2000

TC-AIMS II Project Management Charter, draft 24 June 1997

TC-AIMS II Cost Analysis Requirements Description, draft 3 April 2000

TC-AIMS II Concept of Operations, Functional and Technical, draft 30 August 1996

TC-AIMS II Software Development Plan, 14 February 2000.

TC-AIMS II Information System Design Plan, 3 November 1999

TC-AIMS II Configuration Management Plan, 19 January 2000

DOD 5200.28, Security Requirements for Automated Information Systems, 21 March 88

MIL-STD-1840, Automated Interchange of Technical Information

AR 380-19, Information Systems Security, 10 December 1998

The following are data sources:

TC-AIMS II Security Plan

TC-AIMS II System Segment Specification

TC-AIMS II Telecommunication Segment Specification Software Requirements Specifications

TC-AIMS II Interface Control Document

TC-AIMS II DBMS Specification

TC-AIMS II System Segment Design Document

TC-AIMS II Interface Design Document

TC-AIMS II Hardware Architecture Configuration Document

TC-AIMS II Software Test Plan

TC-AIMS II System Test Plan

TC-AIMS II Statement of Work

## Annex D - HSI Issues Worksheets

A separate issue worksheet has been prepared for each item identified.

### HSI ISSUE WORKSHEET

|  |  |
|--|--|
| ISSUE# SS001   | ISSUE TITLE: System Design   |
| STATUS:  | WAIVED   |
| LAST UPDATE:   |  |
| STATEMENT OF ISSUE:                                  | Does the system design provide a work environment that permits efficient, reliable and safe operation and maintenance? |
| SOURCE OF ISSUE AND DATE IDENTIFIED:                 |  |
| RESPONSIBLE AGENCY:                                  |  |
| REQUIREMENTS REFERENCE:                              |  |
| MANPRINT/HSI DOMAINS AFFECTED:                       | MP_____ PERS_____ TNG_____ HFE_____ HH_____ SS_X SSv_____  |
| PROPOSED SOLUTION:                                   |  |
| SUBMITTING AGENCY/AGENCY POC:                        |  |
| SOURCES OF INFORMATION:                              |  |
| SCHEDULE OF INTERIM RESULTS AND/OR COMPLETED ACTION: |  |
| OUTCOME/RESOLUTION OF CONCERN/ISSUE:                 |  |

# HSI ISSUE WORKSHEET

|  |   |
|--|---|
| ISSUE# SS002   | ISSUE TITLE: Emergency and Warning Devices  |
| STATUS:  | WAIVED  |
| LAST UPDATE:   |   |
| STATEMENT OF ISSUE:                                  | Can emergency and warning devices adequately catch the attention of the operator? |
| SOURCE OF ISSUE AND DATE IDENTIFIED:                 |   |
| RESPONSIBLE AGENCY:                                  |   |
| REQUIREMENTS REFERENCE:                              |   |
| MANPRINT/HSI DOMAINS AFFECTED:                       | MP_____ PERS_____ TNG_____ HFE_____ HH_____<br>SS_ <u>x</u> _____SSv_____         |
| PROPOSED SOLUTION:                                   |   |
| SUBMITTING AGENCY/AGENCY POC:                        |   |
| SOURCES OF INFORMATION:                              |   |
| SCHEDULE OF INTERIM RESULTS AND/OR COMPLETED ACTION: |   |
| OUTCOME/RESOLUTION OF CONCERN/ISSUE:                 |   |

# HSI ISSUE WORKSHEET

|  |  |
|--|--|
| ISSUE# SS003   | ISSUE TITLE: Design Features   |
| STATUS:  | WAIVED   |
| LAST UPDATE:   |  |
| STATEMENT OF ISSUE:                                  | Is there any design features that may cause injury to the operators?   |
| SOURCE OF ISSUE AND DATE IDENTIFIED:                 |  |
| RESPONSIBLE AGENCY:                                  |  |
| REQUIREMENTS REFERENCE:                              |  |
| MANPRINT/HSI DOMAINS AFFECTED:                       | MP_____ PERS_____ TNG_____ HFE_____ HH_____ SS <u>X</u> _____ SSv_____ |
| PROPOSED SOLUTION:                                   |  |
| SUBMITTING AGENCY/AGENCY POC:                        |  |
| SOURCES OF INFORMATION:                              |  |
| SCHEDULE OF INTERIM RESULTS AND/OR COMPLETED ACTION: |  |
| OUTCOME/RESOLUTION OF CONCERN/ISSUE:                 |  |

# HSI ISSUE WORKSHEET

|  |   |
|--|---|
| ISSUE#HH001  | ISSUE TITLE: Emissions  |
| STATUS:  | Assessment waived   |
| LAST UPDATE:   |   |
| STATEMENT OF ISSUE:                                  | Are there any optical emissions?  |
| SOURCE OF ISSUE AND DATE IDENTIFIED:                 |   |
| RESPONSIBLE AGENCY:                                  |   |
| REQUIREMENTS REFERENCE:                              |   |
| MANPRINT/HSI DOMAINS AFFECTED:                       | MP_____ PERS_____ TNG_____ HFE_____ HH_ <u>X</u> _____<br>SS_____SSv_____ |
| PROPOSED SOLUTION:                                   |   |
| SUBMITTING AGENCY/AGENCY POC:                        |   |
| SOURCES OF INFORMATION:                              |   |
| SCHEDULE OF INTERIM RESULTS AND/OR COMPLETED ACTION: |   |
| OUTCOME/RESOLUTION OF CONCERN/ISSUE:                 |   |

HSI ISSUE WORKSHEET

|  |  |
|--|--|
| ISSUE# HH002   | ISSUE TITLE: Potential Hazards   |
| STATUS:  | Assessment waived  |
| LAST UPDATE:   |  |
| STATEMENT OF ISSUE:                                  | Are all potential health hazards identified and eliminated or reduced? |
| SOURCE OF ISSUE AND DATE IDENTIFIED:                 |  |
| RESPONSIBLE AGENCY:                                  |  |
| REQUIREMENTS REFERENCE:                              |  |
| MANPRINT/HSI DOMAINS AFFECTED:                       | MP_____ PERS_____ TNG_____ HFE_____ HH_X_____<br>SS_____SSv_____       |
| PROPOSED SOLUTION:                                   |  |
| SUBMITTING AGENCY/AGENCY POC:                        |  |
| SOURCES OF INFORMATION:                              |  |
| SCHEDULE OF INTERIM RESULTS AND/OR COMPLETED ACTION: |  |
| OUTCOME/RESOLUTION OF CONCERN/ISSUE:                 |  |

# HSI ISSUE WORKSHEET

|  |  |
|--|--|
| ISSUE# MP001   | ISSUE TITLE: Impacts on Grades, Series and Military Occupational Specialties   |
| STATUS:  |  |
| LAST UPDATE:   |  |
| STATEMENT OF ISSUE:                                  | What are the impacts on the grade structures for civilian personnel grade, series and Military Occupational Specialties (MOS)? |
| SOURCE OF ISSUE AND DATE IDENTIFIED:                 |  |
| RESPONSIBLE AGENCY:                                  |  |
| REQUIREMENTS REFERENCE:                              |  |
| MANPRINT/HSI DOMAINS AFFECTED:                       | MP__X__ PERS____ TNG____ HFE____ HH____<br>SS____SSv____   |
| PROPOSED SOLUTION:                                   |  |
| SUBMITTING AGENCY/AGENCY POC:                        |  |
| SOURCES OF INFORMATION:                              |  |
| SCHEDULE OF INTERIM RESULTS AND/OR COMPLETED ACTION: |  |
| OUTCOME/RESOLUTION OF CONCERN/ISSUE:                 |  |

HSI ISSUE WORKSHEET

|  |  |
|--|--|
| ISSUE# MP002   | ISSUE TITLE: Determination of required Number of Personnel   |
| STATUS:  |  |
| LAST UPDATE:   |  |
| STATEMENT OF ISSUE:                                  | Has the number of personnel required as Technical Manual (TM) Functionality users and TC-AIMS II System support personnel been determined? |
| SOURCE OF ISSUE AND DATE IDENTIFIED:                 |  |
| RESPONSIBLE AGENCY:                                  |  |
| REQUIREMENTS REFERENCE:                              |  |
| MANPRINT/HSI DOMAINS AFFECTED:                       | MP__X_ PERS_____ TNG_____ HFE_____<br>HH_____ SS_____SSv_____  |
| PROPOSED SOLUTION:                                   |  |
| SUBMITTING AGENCY/AGENCY POC:                        |  |
| SOURCES OF INFORMATION:                              |  |
| SCHEDULE OF INTERIM RESULTS AND/OR COMPLETED ACTION: |  |
| OUTCOME/RESOLUTION OF CONCERN/ISSUE:                 |  |

HSI ISSUE WORKSHEET

|  |  |
|--|--|
| ISSUE# PERS001                                       | ISSUE TITLE: Target Audience Identification                                    |
| STATUS:  |  |
| LAST UPDATE:   |  |
| STATEMENT OF ISSUE:                                  | Who is the Target Audience for all Services? (Military and Civilian Personnel) |
| SOURCE OF ISSUE AND DATE IDENTIFIED:                 | Each Service must define.  |
| RESPONSIBLE AGENCY:                                  |  |
| REQUIREMENTS REFERENCE:                              |  |
| MANPRINT/HSI DOMAINS AFFECTED:                       | MP_____ PERS__X___ TNG_____ HFE_____<br>HH_____ SS_____SSv_____                |
| PROPOSED SOLUTION:                                   |  |
| SUBMITTING AGENCY/AGENCY POC:                        |  |
| SOURCES OF INFORMATION:                              |  |
| SCHEDULE OF INTERIM RESULTS AND/OR COMPLETED ACTION: |  |
| OUTCOME/RESOLUTION OF CONCERN/ISSUE:                 |  |

HSI ISSUE WORKSHEET

|  |   |
|--|---|
| ISSUE# PERS002                                       | ISSUE TITLE: Reading Grade Level  |
| STATUS:  |   |
| LAST UPDATE:   |   |
| STATEMENT OF ISSUE:                                  | Is the system documentation written at a level that can be readily understood by the users? |
| SOURCE OF ISSUE AND DATE IDENTIFIED:                 |   |
| RESPONSIBLE AGENCY:                                  |   |
| REQUIREMENTS REFERENCE:                              |   |
| MANPRINT/HSI DOMAINS AFFECTED:                       | MP_____ PERS__X___ TNG_____ HFE_____<br>HH_____ SS_____SSv_____                             |
| PROPOSED SOLUTION:                                   |   |
| SUBMITTING AGENCY/AGENCY POC:                        |   |
| SOURCES OF INFORMATION:                              |   |
| SCHEDULE OF INTERIM RESULTS AND/OR COMPLETED ACTION: |   |
| OUTCOME/RESOLUTION OF CONCERN/ISSUE:                 |   |

HSI ISSUE WORKSHEET

|  |   |
|--|---|
| ISSUE# PERS003                                       | ISSUE TITLE: Levels of Access   |
| STATUS:  |   |
| LAST UPDATE:   |   |
| STATEMENT OF ISSUE:                                  | What levels of access are required for U.S. citizens and foreign nationals? |
| SOURCE OF ISSUE AND DATE IDENTIFIED:                 |   |
| RESPONSIBLE AGENCY:                                  |   |
| REQUIREMENTS REFERENCE:                              |   |
| MANPRINT/HSI DOMAINS AFFECTED:                       | MP_____ PERS__X___ TNG_____ HFE_____<br>HH_____ SS_____SSv_____             |
| PROPOSED SOLUTION:                                   |   |
| SUBMITTING AGENCY/AGENCY POC:                        |   |
| SOURCES OF INFORMATION:                              |   |
| SCHEDULE OF INTERIM RESULTS AND/OR COMPLETED ACTION: |   |
| OUTCOME/RESOLUTION OF CONCERN/ISSUE:                 |   |

HSI ISSUE WORKSHEET

|  |   |
|--|---|
| ISSUE# PERS004                                       | ISSUE TITLE: Security Clearance Requirements  |
| STATUS:  |   |
| LAST UPDATE:   |   |
| STATEMENT OF ISSUE:                                  | Are sufficient numbers of personnel with a security clearance available in each organization? |
| SOURCE OF ISSUE AND DATE IDENTIFIED:                 |   |
| RESPONSIBLE AGENCY:                                  |   |
| REQUIREMENTS REFERENCE:                              |   |
| MANPRINT/HSI DOMAINS AFFECTED:                       | MP_____ PERS__X___ TNG_____ HFE_____<br>HH_____ SS_____SSv_____                               |
| PROPOSED SOLUTION:                                   |   |
| SUBMITTING AGENCY/AGENCY POC:                        |   |
| SOURCES OF INFORMATION:                              |   |
| SCHEDULE OF INTERIM RESULTS AND/OR COMPLETED ACTION: |   |
| OUTCOME/RESOLUTION OF CONCERN/ISSUE:                 |   |

# HSI ISSUE WORKSHEET

|  |  |
|--|--|
| ISSUE# PERS005                                       | ISSUE TITLE: Quality of Skills   |
| STATUS:  |  |
| LAST UPDATE:   |  |
| STATEMENT OF ISSUE:                                  | Do TM Functionality users and TC-AIMS II System support personnel have adequate aptitudes and skills to perform system required tasks, with the required speed and accuracy? |
| SOURCE OF ISSUE AND DATE IDENTIFIED:                 |  |
| RESPONSIBLE AGENCY:                                  |  |
| REQUIREMENTS REFERENCE:                              |  |
| MANPRINT/HSI DOMAINS AFFECTED:                       | MP_____ PERS__X___ TNG_____ HFE_____<br>HH_____ SS_____SSv_____  |
| PROPOSED SOLUTION:                                   |  |
| SUBMITTING AGENCY/AGENCY POC:                        |  |
| SOURCES OF INFORMATION:                              |  |
| SCHEDULE OF INTERIM RESULTS AND/OR COMPLETED ACTION: |  |
| OUTCOME/RESOLUTION OF CONCERN/ISSUE:                 |  |

HSI ISSUE WORKSHEET

|  |   |
|--|---|
| ISSUE# TNG001  | ISSUE TITLE: Computer Literacy Requirement  |
| STATUS:  | Closed  |
| LAST UPDATE:   |   |
| STATEMENT OF ISSUE:                                  | Are user personnel required to be computer literate?  |
| SOURCE OF ISSUE AND DATE IDENTIFIED:                 |   |
| RESPONSIBLE AGENCY:                                  | JPMO TC-AIMS II   |
| REQUIREMENTS REFERENCE:                              |   |
| MANPRINT/HSI DOMAINS AFFECTED:                       | MP_____ PERS_____ TNG_X_____ HFE_____<br>HH_____ SS_____SSv_____  |
| PROPOSED SOLUTION:                                   |   |
| SUBMITTING AGENCY/AGENCY POC:                        |   |
| SOURCES OF INFORMATION:                              | TMFD, Par 2.5.4.4 Training  |
| SCHEDULE OF INTERIM RESULTS AND/OR COMPLETED ACTION: |   |
| OUTCOME/RESOLUTION OF CONCERN/ISSUE:                 | "Those students attending training must be "computer literate", i.e. familiar with the use of personal computer/system hardware, software, video displays, and simple data entry techniques." |

# HSI ISSUE WORKSHEET

|  |  |
|--|--|
| ISSUE# TNG002  | ISSUE TITLE: Embedded Training   |
| STATUS:  | Open   |
| LAST UPDATE:   |  |
| STATEMENT OF ISSUE:                                  | How effective is the mulitmedia training to the target audience?             |
| SOURCE OF ISSUE AND DATE IDENTIFIED:                 |  |
| RESPONSIBLE AGENCY:                                  | JPMO TC-AIMS II  |
| REQUIREMENTS REFERENCE:                              | TRADOC Reg 350-70  |
| MANPRINT/HSI DOMAINS AFFECTED:                       | MP_____ PERS_____ TNG__X___ HFE_____<br>HH_____ SS_____SSv_____              |
| PROPOSED SOLUTION:                                   |  |
| SUBMITTING AGENCY/AGENCY POC:                        |  |
| SOURCES OF INFORMATION:                              | JPMO TC-AIMS II Systems Approach to Training (SAT)                           |
| SCHEDULE OF INTERIM RESULTS AND/OR COMPLETED ACTION: |  |
| OUTCOME/RESOLUTION OF CONCERN/ISSUE:                 | Multimedia training is not part of the current TC-AIMS II training strategy. |

HSI ISSUE WORKSHEET

|  |   |
|--|---|
| ISSUE# TNG003  | ISSUE TITLE: Timing of Training   |
| STATUS:  |   |
| LAST UPDATE:   |   |
| STATEMENT OF ISSUE:                                  | Will Government and contractor personnel be able to be trained to complete all system related tasks within the time allotted? |
| SOURCE OF ISSUE AND DATE IDENTIFIED:                 |   |
| RESPONSIBLE AGENCY:                                  |   |
| REQUIREMENTS REFERENCE:                              |   |
| MANPRINT/HSI DOMAINS AFFECTED:                       | MP_____ PERS_____ TNG__X___ HFE_____<br>HH_____ SS_____SSv_____   |
| PROPOSED SOLUTION:                                   |   |
| SUBMITTING AGENCY/AGENCY POC:                        |   |
| SOURCES OF INFORMATION:                              |   |
| SCHEDULE OF INTERIM RESULTS AND/OR COMPLETED ACTION: |   |
| OUTCOME/RESOLUTION OF CONCERN/ISSUE:                 |   |

# HSI ISSUE WORKSHEET

|  |   |
|--|---|
| ISSUE# TNG004  | ISSUE TITLE: Training Goals                                     |
| STATUS:  |   |
| LAST UPDATE:   |   |
| STATEMENT OF ISSUE:                                  | Have training objectives been specified in sufficient detail?   |
| SOURCE OF ISSUE AND DATE IDENTIFIED:                 |   |
| RESPONSIBLE AGENCY:                                  |   |
| REQUIREMENTS REFERENCE:                              |   |
| MANPRINT/HSI DOMAINS AFFECTED:                       | MP_____ PERS_____ TNG__X___ HFE_____<br>HH_____ SS_____SSv_____ |
| PROPOSED SOLUTION:                                   |   |
| SUBMITTING AGENCY/AGENCY POC:                        |   |
| SOURCES OF INFORMATION:                              |   |
| SCHEDULE OF INTERIM RESULTS AND/OR COMPLETED ACTION: |   |
| OUTCOME/RESOLUTION OF CONCERN/ISSUE:                 |   |

# HSI ISSUE WORKSHEET

|  |   |
|--|---|
| ISSUE# TNG005  | ISSUE TITLE: Sustainment Training                               |
| STATUS:  |   |
| LAST UPDATE:   |   |
| STATEMENT OF ISSUE:                                  | Have the requirements for sustainment training been identified? |
| SOURCE OF ISSUE AND DATE IDENTIFIED:                 |   |
| RESPONSIBLE AGENCY:                                  |   |
| REQUIREMENTS REFERENCE:                              |   |
| MANPRINT/HSI DOMAINS AFFECTED:                       | MP_____ PERS_____ TNG__X___ HFE_____<br>HH_____ SS_____SSv_____ |
| PROPOSED SOLUTION:                                   |   |
| SUBMITTING AGENCY/AGENCY POC:                        |   |
| SOURCES OF INFORMATION:                              |   |
| SCHEDULE OF INTERIM RESULTS AND/OR COMPLETED ACTION: |   |
| OUTCOME/RESOLUTION OF CONCERN/ISSUE:                 |   |

HSI ISSUE WORKSHEET

|  |   |
|--|---|
| ISSUE# TNG006  | ISSUE TITLE: Additional Training  |
| STATUS:  |   |
| LAST UPDATE:   |   |
| STATEMENT OF ISSUE:                                  | What is the impact of TC-AIMS II on their being able to complete currently assigned duties? |
| SOURCE OF ISSUE AND DATE IDENTIFIED:                 |   |
| RESPONSIBLE AGENCY:                                  |   |
| REQUIREMENTS REFERENCE:                              |   |
| MANPRINT/HSI DOMAINS AFFECTED:                       | MP_____ PERS_____ TNG__X___ HFE_____<br>HH_____ SS_____SSv_____                             |
| PROPOSED SOLUTION:                                   |   |
| SUBMITTING AGENCY/AGENCY POC:                        |   |
| SOURCES OF INFORMATION:                              |   |
| SCHEDULE OF INTERIM RESULTS AND/OR COMPLETED ACTION: |   |
| OUTCOME/RESOLUTION OF CONCERN/ISSUE:                 |   |

HSI ISSUE WORKSHEET

|  |   |
|--|---|
| ISSUE# HFE001  | ISSUE TITLE: Physical and Cognitive Abilities   |
| STATUS:  |   |
| LAST UPDATE:   |   |
| STATEMENT OF ISSUE:                                  | Do the TC-AIMS II design characteristics exceed cognitive abilities of the target audience? |
| SOURCE OF ISSUE AND DATE IDENTIFIED:                 |   |
| RESPONSIBLE AGENCY:                                  |   |
| REQUIREMENTS REFERENCE:                              |   |
| MANPRINT/HSI DOMAINS AFFECTED:                       | MP_____ PERS_____ TNG_____ HFE__X_____<br>HH_____ SS_____SSv_____                           |
| PROPOSED SOLUTION:                                   |   |
| SUBMITTING AGENCY/AGENCY POC:                        |   |
| SOURCES OF INFORMATION:                              |   |
| SCHEDULE OF INTERIM RESULTS AND/OR COMPLETED ACTION: |   |
| OUTCOME/RESOLUTION OF CONCERN/ISSUE:                 |   |

# HSI ISSUE WORKSHEET

|  |   |
|--|---|
| ISSUE# HFE002  | ISSUE TITLE: Navigational ability   |
| STATUS:  |   |
| LAST UPDATE:   |   |
| STATEMENT OF ISSUE:                                  | Do the software interfaces meet accepted human engineering practices for consistency of presentation, navigational ability, screen layout, operator feedback, and error messages? |
| SOURCE OF ISSUE AND DATE IDENTIFIED:                 |   |
| RESPONSIBLE AGENCY:                                  |   |
| REQUIREMENTS REFERENCE:                              |   |
| MANPRINT/HSI DOMAINS AFFECTED:                       | MP_____ PERS_____ TNG_____ HFE__X_____<br>HH_____ SS_____SSv_____   |
| PROPOSED SOLUTION:                                   |   |
| SUBMITTING AGENCY/AGENCY POC:                        |   |
| SOURCES OF INFORMATION:                              |   |
| SCHEDULE OF INTERIM RESULTS AND/OR COMPLETED ACTION: |   |
| OUTCOME/RESOLUTION OF CONCERN/ISSUE:                 |   |

HSI ISSUE WORKSHEET

|  |  |
|--|--|
| ISSUE# HFE003  | ISSUE TITLE: Help  |
| STATUS:  |  |
| LAST UPDATE:   |  |
| STATEMENT OF ISSUE:                                  | Does the system provide adequate help messages and instructions to aid the operator? |
| SOURCE OF ISSUE AND DATE IDENTIFIED:                 |  |
| RESPONSIBLE AGENCY:                                  |  |
| REQUIREMENTS REFERENCE:                              |  |
| MANPRINT/HSI DOMAINS AFFECTED:                       | MP_____ PERS_____ TNG_____ HFE__X_____<br>HH_____ SS_____SSv_____                    |
| PROPOSED SOLUTION:                                   |  |
| SUBMITTING AGENCY/AGENCY POC:                        |  |
| SOURCES OF INFORMATION:                              |  |
| SCHEDULE OF INTERIM RESULTS AND/OR COMPLETED ACTION: |  |
| OUTCOME/RESOLUTION OF CONCERN/ISSUE:                 |  |

# HSI ISSUE WORKSHEET

|  |  |
|--|--|
| ISSUE# HFE004  | ISSUE TITLE: Controls, Displays and Work Space   |
| STATUS:  |  |
| LAST UPDATE:   |  |
| STATEMENT OF ISSUE:                                  | Does the system have all necessary controls and displays to meet the needs of the operators and maintainers under all operating modes and in all operating environments? |
| SOURCE OF ISSUE AND DATE IDENTIFIED:                 |  |
| RESPONSIBLE AGENCY:                                  |  |
| REQUIREMENTS REFERENCE:                              |  |
| MANPRINT/HSI DOMAINS AFFECTED:                       | MP_____ PERS_____ TNG_____ HFE__X_____<br>HH_____ SS_____SSv_____  |
| PROPOSED SOLUTION:                                   |  |
| SUBMITTING AGENCY/AGENCY POC:                        |  |
| SOURCES OF INFORMATION:                              |  |
| SCHEDULE OF INTERIM RESULTS AND/OR COMPLETED ACTION: |  |
| OUTCOME/RESOLUTION OF CONCERN/ISSUE:                 |  |

HSI ISSUE WORKSHEET

|  |   |
|--|---|
| ISSUE# HFE005  | ISSUE TITLE: Impact of Operator Fatigue and Stress                                    |
| STATUS:  |   |
| LAST UPDATE:   |   |
| STATEMENT OF ISSUE:                                  | How much will performance be degraded when system operators are fatigued or stressed? |
| SOURCE OF ISSUE AND DATE IDENTIFIED:                 |   |
| RESPONSIBLE AGENCY:                                  |   |
| REQUIREMENTS REFERENCE:                              |   |
| MANPRINT/HSI DOMAINS AFFECTED:                       | MP_____ PERS_____ TNG_____ HFE__X_____<br>HH_____ SS_____SSv_____                     |
| PROPOSED SOLUTION:                                   |   |
| SUBMITTING AGENCY/AGENCY POC:                        |   |
| SOURCES OF INFORMATION:                              |   |
| SCHEDULE OF INTERIM RESULTS AND/OR COMPLETED ACTION: |   |
| OUTCOME/RESOLUTION OF CONCERN/ISSUE:                 |   |

HSI ISSUE WORKSHEET

|  |   |
|--|---|
| ISSUE# HFE006  |   |
| STATUS:  |   |
| LAST UPDATE:   |   |
| STATEMENT OF ISSUE:                                  | Are the business practices of each Service easily translatable to usage of the task screen? |
| SOURCE OF ISSUE AND DATE IDENTIFIED:                 |   |
| RESPONSIBLE AGENCY:                                  |   |
| REQUIREMENTS REFERENCE:                              |   |
| MANPRINT/HSI DOMAINS AFFECTED:                       | MP_____ PERS_____ TNG_____ HFE__X_____<br>HH_____ SS_____SSv_____                           |
| PROPOSED SOLUTION:                                   |   |
| SUBMITTING AGENCY/AGENCY POC:                        |   |
| SOURCES OF INFORMATION:                              |   |
| SCHEDULE OF INTERIM RESULTS AND/OR COMPLETED ACTION: |   |
| OUTCOME/RESOLUTION OF CONCERN/ISSUE:                 |   |

HSI ISSUE WORKSHEET

|  |   |
|--|---|
| ISSUE# SSv001  | ISSUE TITLE: System Characteristics   |
| STATUS:  |   |
| LAST UPDATE:   |   |
| STATEMENT OF ISSUE:                                  | Is there a system characteristic which, if not remedied, could reasonably be expected to result in serious bodily injury or death to the operating personnel? |
| SOURCE OF ISSUE AND DATE IDENTIFIED:                 |   |
| RESPONSIBLE AGENCY:                                  |   |
| REQUIREMENTS REFERENCE:                              |   |
| MANPRINT/HSI DOMAINS AFFECTED:                       | MP_____ PERS_____ TNG_____ HFE_____<br>HH_____ SS_____SSv__X__  |
| PROPOSED SOLUTION:                                   |   |
| SUBMITTING AGENCY/AGENCY POC:                        |   |
| SOURCES OF INFORMATION:                              |   |
| SCHEDULE OF INTERIM RESULTS AND/OR COMPLETED ACTION: |   |
| OUTCOME/RESOLUTION OF CONCERN/ISSUE:                 |   |

# HSI ISSUE WORKSHEET

|  |  |
|--|--|
| ISSUE# Ssv002  | ISSUE TITLE: System Characteristics  |
| STATUS:  |  |
| LAST UPDATE:   |  |
| STATEMENT OF ISSUE:                                  | Is there a system electromagnetic signature or emissions which uniquely identifies the TC-AIMS II system and could be exploited for targeting threat weapons against the system? |
| SOURCE OF ISSUE AND DATE IDENTIFIED:                 |  |
| RESPONSIBLE AGENCY:                                  |  |
| REQUIREMENTS REFERENCE:                              |  |
| MANPRINT/HSI DOMAINS AFFECTED:                       | MP_____ PERS_____ TNG_____ HFE_____<br>HH_____ SS_____ Ssv_ X_____   |
| PROPOSED SOLUTION:                                   |  |
| SUBMITTING AGENCY/AGENCY POC:                        |  |
| SOURCES OF INFORMATION:                              |  |
| SCHEDULE OF INTERIM RESULTS AND/OR COMPLETED ACTION: |  |
| OUTCOME/RESOLUTION OF CONCERN/ISSUE:                 |  |

# HSI ISSUE WORKSHEET

|  |   |
|--|---|
| ISSUE# Ssv003  | ISSUE TITLE: System Characteristics   |
| STATUS:  |   |
| LAST UPDATE:   |   |
| STATEMENT OF ISSUE:                                  | When deployed in an area where there is a high likelihood of a chemical and/or biological agent attack, can the operating personnel adequately perform the required functions while wearing full chemical protective clothing (i.e. MOPP IV)? |
| SOURCE OF ISSUE AND DATE IDENTIFIED:                 |   |
| RESPONSIBLE AGENCY:                                  |   |
| REQUIREMENTS REFERENCE:                              |   |
| MANPRINT/HSI DOMAINS AFFECTED:                       | MP_____ PERS_____ TNG_____ HFE_____<br>HH_____ SS_____ Ssv_ X_____  |
| PROPOSED SOLUTION:                                   |   |
| SUBMITTING AGENCY/AGENCY POC:                        |   |
| SOURCES OF INFORMATION:                              |   |
| SCHEDULE OF INTERIM RESULTS AND/OR COMPLETED ACTION: |   |
| OUTCOME/RESOLUTION OF CONCERN/ISSUE:                 |   |

# HSI ISSUE WORKSHEET

|  |   |
|--|---|
| ISSUE# Ssv004  | ISSUE TITLE: System Characteristics   |
| STATUS:  |   |
| LAST UPDATE:   |   |
| STATEMENT OF ISSUE:                                  | Can the operator of the TC-AIMS II perform the required functions for the required duration with a minimum of mental fatigue and/or cognitive stress? |
| SOURCE OF ISSUE AND DATE IDENTIFIED:                 |   |
| RESPONSIBLE AGENCY:                                  |   |
| REQUIREMENTS REFERENCE:                              |   |
| MANPRINT/HSI DOMAINS AFFECTED:                       | MP_____ PERS_____ TNG_____ HFE_____<br>HH_____ SS_____ Ssv_ X_____  |
| PROPOSED SOLUTION:                                   |   |
| SUBMITTING AGENCY/AGENCY POC:                        |   |
| SOURCES OF INFORMATION:                              |   |
| SCHEDULE OF INTERIM RESULTS AND/OR COMPLETED ACTION: |   |
| OUTCOME/RESOLUTION OF CONCERN/ISSUE:                 |   |

## **Annex E - Test and Evaluation**

The Human Factors Engineering test and evaluation approaches for the TC-AIMS II System are outlined as follows:

a. For Test and Evaluation, the TC-AIMS II System was initially installed at eight sites. These sites served as the basis for an operational assessment of HSI-related functions such as environment, health and hazard analysis, safety analysis, human factor's evaluations, manpower and personnel evaluation, and training. The operational environment of the TC-AIMS II users will continue to be assessed through the Site Survey Questionnaires (SSQs), initial site surveys, hardware NDI assessments, and previous lessons learned. The environment of the users will range from brick and mortar buildings to warehouse environments; from well-lighted, air-conditioned offices to open area desk space with office noise and traffic and variable lighting. The working environment will continue to be assessed by human factors engineers and will be completed as part of each site's final site survey. The initial assessment of user work areas did not identify any human factors, safety, or health hazards.

b. The HFE program effort will be tested as specified in the Human Engineering Test Plan (HETP), To Be Published. This plan describes the formal test program that will be performed to demonstrate that the TC-AIMS II system complies with all human engineering requirements. The human engineering data collected will be analyzed to ensure that the following criteria are satisfied. A detailed breakout of the testing criteria for each HSI domain is provided in the HETP.

- All human performance requirements for operations and maintenance (contractor maintenance at this time) can be performed to an acceptable level or standard under conditions of expected use.

- The human performance requirements for operations and maintenance (contractor maintenance at this time) are performed reliably by personnel who will ultimately perform them.

- Both the cost (in terms of all resources required) and some measure (based on human performance time and error data) of prospective effectiveness of the contractor's training program for operations and maintenance (no maintenance training required at this time) are known.

- The design of system hardware and software facilitates efficient, safe, and accurate human performance.

c. During the Initial Operational Test & Evaluation (IOT&E), HFE criteria will be tested as outlined in the Test and Evaluation Master Plan.

## Annex F- HSI Milestone Events Schedule

| <b>TASK</b>                | <b>ACTION</b>                       | <b>DATE</b> | <b>AGENCY</b>                             | <b>COMMENTS</b>                                    |
|----------------------------|-------------------------------------|-------------|---|--|
| HSIP Development           | Begin Preliminary Draft             | 24 Dec 97   | JPMO/ILS Division                         | Prepared Draft HSI Charter and HSIP                |
| HSIP Development           | Internal Coordination of Draft      | 7 Jan 98    | JPMO/ILS Division                         | Review Prior to Submission to Services             |
| HSIP Development           | Submit to Services                  | 8 Jan 98    | JPMO/ILS Division and Services            | Review Prior to HSIP WIPT                          |
| HSIP WIPT                  | Initial Brief and Discussions       | 14 Jan 98   | JPMO/ILS Division and Services            | Provided Services With HSI Charter and HSIP        |
| ILS WIPT                   | HSI Review                          | 12 Aug 98   | JPMO/ILS Division and Services            | Update HSI Status and Cost of Domain Assessments   |
| Health Hazard Assessment   | Reviewed TC-AIMS II Health Hazards  | 19 Nov 98   | USAMC-SG                                  | Provided a Waiver for the Health Hazard Assessment |
| ILS WIPT                   | HSI Review                          | 3 Dec 98    | JPMO/ILS Division and Services            | Waiting for Cost Estimates From Domain Reps        |
| MANPRINT Meeting           | Understanding Domains               | 17 Dec 98   | JPMO/ILS Division and Domain Reps         | Obtain Understanding of Domain Requirements        |
| HSIP Draft Development     | Update HSIP                         | 19 Mar 99   | JPMO/ILS Division                         | Revised and Updated the HSIP                       |
| System Safety Assessment   | Reviewed TC-AIMS II System Safety   | 8 Jun 99    | CECOM                                     | Provided a Waiver for the System Safety Assessment |
| MANPRINT Meeting           | TC-AIMS II Overview for the Domains | 17 Jun 99   | JPMO/ILS Division and Domain Reps         | Domain Reps Provided Preliminary Assessments       |
| HSIP Draft Development     | Update HSIP                         | 5 Oct 99    | JPMO/ILS Division                         | Revised and Updated the HSIP                       |
| T&E/ILS WIPT               | Discuss OT Requirements             | 13 Oct 99   | JPMO/Services/ATEC/OTC/TRANSCOM           | Update on CMB issues/direction                     |
| T&E/ILS WIPT               | Discuss OT plans and program status | 13 Dec 99   | JPMO/Services/DPMO/CASCOM                 | ILS/Training/Fielding plans. HSI review            |
| Preliminary HFE Assessment | Signed 2 Feb 00                     | Jan 00      | ARL DHRED                                 | Distributed to PM and Division Chiefs              |
| MANPRINT Meeting           | Discuss Army Assessment             | 20 Apr 00   | JPMO/CASCOM/ARL                           | Analysis by Mr. Charity, CASCOM                    |
| Operational Assessment     | OA at one of each Service sites     | Aug 00      | Ft Hood, Shaw AFB, Camp Lejeune, Gulfport | AEC/OTC/Services                                   |

**Annex G - HSIWG Charter**

**HUMAN SYSTEMS INTEGRATION  
WORKING GROUP (HSIWG) CHARTER  
FOR  
PROJECT OFFICER, TRANSPORTATION COORDINATORS' -  
AUTOMATED INFORMATION FOR MOVEMENT SYSTEMS II  
(TC-AIMS II)  
30 March 2001**

**SUBMITTED BY:**

**APPROVED BY:**

\_\_\_\_\_  
NAME  
title  
(HSIWG Chairperson)  
TC-AIMS II, JPMO

\_\_\_\_\_  
Date

\_\_\_\_\_  
LTC Nick Justice  
Project Officer, TC-AIMS II

\_\_\_\_\_  
Date

\_\_\_\_\_  
Doug Garrell  
Chief, Integrated Logistics Division  
TC-AIMS II, JPMO

\_\_\_\_\_  
Date

**HUMAN SYSTEMS INTEGRATION  
WORKING GROUP (HSIWG) CHARTER  
FOR  
TRANSPORTATION COORDINATORS'-  
AUTOMATED INFORMATION FOR MOVEMENT SYSTEMS II  
(TC-AIMS II)**

**1. PURPOSE**

This charter will establish a technically qualified Human Systems Integration Working Group to monitor, plan, manage, coordinate, and ensure that HSI issues and concerns are appropriately and adequately addressed during system design, development, and test.

**2. SCOPE**

The HSIWG will operate in accordance with TC-AIMS II, JPMO HSIWG charter and will ensure that all HSI domains (Manpower, Personnel, Training, System Safety, Health Hazards, Human Factors Engineering, and Soldier Survivability) are considered in the achievement of the overall objectives: to influence material and support system designs. This will ensure conformance with the capabilities and limitations of civilian and military personnel who will be required to operate and maintain the TC-AIMS II system. The HSIWG will monitor HSI goals and constraints and address all issues and concerns to confirm satisfactory resolution. The HSIP will be used as the vehicle to document HSIWG activities.

**3. REFERENCES**

- a. DOD Directive 5000.51, Total Quality Management Guidance for Implementation.
- b. DOD-HDBK-761, Human Engineering Guidelines for Management Information Systems.
- c. AR 602-1, Human Factors Engineering Program, 2 August 91.
- d. AR 602-2, Manpower and Personnel Integration in the Materiel Acquisition Process, 10 July 94.
- e. MEMORANDUM: MANPRINT Interim Procedures for Automated Information System, 2 August 1993.
- f. Human Systems Integration Plan (HSIP), (latest edition).

#### **4. MANAGEMENT**

The management and functional operation of the HSIWG is outlined below:

a. Membership

(1) Key members are appointed from the following organizations.

- (a) TC-AIMS II, JPMO Management Office
- (b) U.S. Total Army Personnel Command (PERSCOM)
- (c) Training and Doctrine Command (TRADOC)
- (d) Army Research Laboratory-Human Research and Engineering Directorate (ARL-HRED)
- (e) Army Research Laboratory-Survivability and Lethality Directorate (ARL-SLAD)
- (f) U.S. Army Center for Health Promotion and Preventive Medicine (CHPPM)
- (g) U.S. Army Operational Test and Evaluation Command (OPTEC)
- (h) Contractors (if required)

(2) Members will be appointed from the principal program offices.

(3) Supporting organization members will be invited to attend meetings on an as-needed basis to provide technical expertise and support.

(4) TC-AIMS II, JPMO ILS representative will be the Chairperson for the HSIWG.

(5) Membership requirements for the HSIWG will be changed as the need arises to fulfill HSIWG program objectives.

(6) The System Safety Working Group (SSWG) meetings will be held as a subgroup of the HSIWG. Individual SSWG meetings will be held preceding safety reviews and at other times as required by TC-AIMS II, JPMO.

b. HSIWG meetings will be held at least twice a year and/or as deemed necessary by the TC-AIMS II, JPMO Office. Key members, or a replacement, will attend all meetings. Supporting members will attend meetings as required at the invitation of the Chairperson.

c. Administration

(1) The HSIWG Chairperson will publish the agenda for scheduled meetings, normally two weeks prior to the meeting.

(2) Proposed agenda items may be submitted by any member of the HSIWG prior to agenda submittal by the Chairperson.

(3) Minutes will be prepared for each meeting. A summary of all actions, action agencies, representatives and suspense dates will be prepared prior to closure of the meeting. Formal minutes for each meeting will be prepared and distributed by the TC-AIMS II, JPMO office.

(4) All HSI issues and concerns received from any source along with recommendations for their resolution will be provided to TC-AIMS II, JPMO office for final disposition.

(5) All HSIWG members will assist in the resolutions of all HSI issues and concerns.

(6) All action items from previous HSIWG meetings will be reviewed to determine location or possession status. Any action items not resolved will be pursued to effect a successful closure. If deemed necessary by the HSIWG, Special Study Groups (SSG) or subcommittees will be established to investigate unresolved HSI issues.

(7) Recurring HSI element issues will be examined, monitored, reviewed, and evaluated for corrective action.

(8) The HSIWG will assign SSG and/or subcommittees to review and analyze critical issues and concerns relating to any of the HSI domains.

(9) This HSIWG charter will be reviewed at least annually and updated or modified as required to meet HSI goals and objectives.

(10) HSIWG members must have signature authority from their Services/agencies.

**5. TERM**

TC-AIMS II, JPMO HSIWG will remain active until retired by the TC-AIMS II, JPMO Office.

**TC-AIMS II HSIWG  
MEMBERSHIP ROSTER**

**ARMY**

| <u>NAME</u>   | <u>AGENCY</u> | <u>PHONE#</u> |
|---------------|---------------|---------------|
| Cedric Jasmin | DA DCSLOG/TSM | 703-695-2762  |

**AIR FORCE**

| <u>NAME</u>     | <u>AGENCY</u> | <u>PHONE#</u> |
|-----------------|---------------|---------------|
| Maj Reggie Hall | HQ USAF/ILTT  | 703-697-4742  |

**NAVY**

| <u>NAME</u>        | <u>AGENCY</u> | <u>PHONE#</u> |
|--------------------|---------------|---------------|
| Ms. Dorothy McLeod | NAVTRANS      | 757-444-5404  |

**MARINE CORPS**

| <u>NAME</u>        | <u>AGENCY</u> | <u>PHONE#</u> |
|--------------------|---------------|---------------|
| Maj Stephen Wilson | MARCORSYSCOM  | 703-784-0877  |

**PERSCOM**

| <u>NAME</u>         | <u>AGENCY</u> | <u>PHONE#</u> |
|---------------------|---------------|---------------|
| Ms. Denise McCauley | TAPC-PLC-M    | 703-325-4557  |

**TRADOC**

| <u>NAME</u>     | <u>AGENCY</u> | <u>PHONE#</u> |
|-----------------|---------------|---------------|
| Mr. Don Charity | CASCOM        | 804-734-2851  |

**USARL-HRED**

| <u>NAME</u>     | <u>AGENCY</u> | <u>PHONE#</u> |
|-----------------|---------------|---------------|
| Dr. Don Headley | ARL-HRED      | 410-278-5919  |

| <u>NAME</u>      | <u>AGENCY</u> | <u>PHONE#</u> |
|------------------|---------------|---------------|
| Mr. Dave Bassett | ARL-SLAD      | DSN 584-3538  |

**CHPPM**

| <u>NAME</u>   | <u>AGENCY</u> | <u>PHONE#</u> |
|---------------|---------------|---------------|
| Mr. Bob Gross | MCHB-MO-A     | DSN 584-2925  |

**OPTEC**

| <u>NAME</u>    | <u>AGENCY</u> | <u>PHONE#</u> |
|----------------|---------------|---------------|
| Dr. Ann Maddux | ATEC-AEC-IMA  | 703-681-9002  |

**HSIWG CHARTER  
APPROVAL SHEET**

|                                    | <u>SIGNATURE</u> | <u>DATE</u> |
|------------------------------------|------------------|-------------|
| HSIWG Chairperson                  | _____            | _____       |
| Chief, ILS DIV<br>TC-AIMS II, JPMO | _____            | _____       |
| Program Manager<br>TC-AIMS II      | _____            | _____       |
| US Army                            | _____            | _____       |
| US Air Force                       | _____            | _____       |
| US Marine Corps                    | _____            | _____       |
| US Navy                            | _____            | _____       |
| PERSCOM                            | _____            | _____       |
| TRADOC                             | _____            | _____       |
| ARL-HRED                           | _____            | _____       |

ARL-SLAD

\_\_\_\_\_

\_\_\_\_\_

CHPPM

\_\_\_\_\_

\_\_\_\_\_

OPTEC

\_\_\_\_\_

\_\_\_\_\_

CONTRACTOR  
(IF REQUIRED)

\_\_\_\_\_

\_\_\_\_\_